CLAIMS

1. An integrated process of simultaneous synthesis and crystallisation for the preparation of dipeptide crystals with the generic formula $AcXYNH_2$, starting from the amino acids AcXOEt and YNH_2, which is characterised by the use of proteases in organic media of reversed micelles.

2. Process according to **1**, characterised by the fact that it is carried out in batch reactors.

3. Process according to **1**, characterised by the fact that it is carried out in an enzymatic, membrane and hydro-cyclone, reactor which enables the continuous or batch production of the referred crystals.

4. Process according to claims **1**, **2** and **3** characterised by the fact that it is used for the production of other dipeptides or dipeptide derivatives with the generic formula XY, starting from amino acids X and Y.

5. Process according to claims **1**, **2**, **3** and **4** characterised by the fact that the synthesis process is chemical and not enzymatic.

6. Process according to claims **3**, **4** or **5**, characterised by the fact that instead of a hydro-cyclone, another unit is coupled to the system which also enables the continuous sedimentation and removal of the crystals from the system.

7. Process according to claims **1**, **2**, **3**, **4**, **5** and **6** characterised by the fact that the resulting crystals are further purified by re-crystallisation in an adequate solvent.